

CLAIMS:

1. A pharmaceutical composition comprising a metal complex of a carboxylate having anti-inflammatory activity in a pharmaceutically acceptable carrier, wherein:

- 5 (1) the composition has a colloidal structure, or forms a colloidal structure when administered to a human or animal, or is immiscible with water;
- (2) more than 80% of the total amount of the carboxylate having anti-inflammatory activity in the composition is present as part of a metal complex; and
- 10 (3) less than 10% of the carboxylate having anti-inflammatory activity complexed with the metal dissociates from the metal over 12 months when the composition is stored in the absence of light at room temperature;
- but excluding compositions comprising a metal complex containing the ligand DMF.

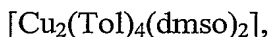
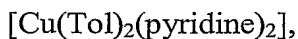
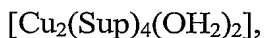
2. A pharmaceutical composition according to claim 1, wherein less than 10%
15 of the carboxylate having anti-inflammatory activity complexed with the metal dissociates from the metal over 18 months when the composition is stored in the absence of light at room temperature.

3. A pharmaceutical composition according to claim 1, wherein less than 5% of
20 the carboxylate having anti-inflammatory activity complexed with the metal dissociates from the metal over 18 months when the composition is stored in the absence of light at room temperature.

4. A pharmaceutical composition according to any one of claims 1 to 3, wherein
25 the carboxylate having anti-inflammatory activity is a NSAID.

5. A pharmaceutical composition according to any one of claims 1 to 4, wherein the metal is Cu, Zn, Co or Ni.

30 6. A pharmaceutical composition according to any one of claims 1 to 5, wherein the metal complex of a carboxylate having anti-inflammatory activity is selected from the group consisting of:



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[Cu(Nap)₂(pyridine)₂],

[Cu₂(Nap)₄(dmso)₂],

[Cu(Ibu)₂(pyridine)₂],

[Cu₂(Ibu)₄(dmso)₄],

5 [Cu(Ibu)₂(imidazole)₂],

[Cu(Ibu)₂(2-methylimidazole)₂],

[Cu₂(Ibu)₄(caffeine)₂],

[Cu₂(Ibu)₄(metronidazole)₂],

[Cu₂(Flufen)₄L₂] where each L is independently selected and is caffeine or papaverine,

10 [Cu(Flufen)₂L₂] where each L is independently selected and is nicotine, nicotinamide or *N,N*-diethylnicotinamide,

[Cu(Nif)₂L₂] where each L is independently selected and is 3-pyridylmethanol or water,

[Cu₂(Nif)₄(dmso)₂],

15 [Cu₂(Indo)₄L₂] where each L is independently selected and is water, *N,N*-dimethylacetamide, *N*-methyl-2-pyrrolidone, tetrahydrofuran, acetonitrile, acetone or dimethylsulfoxide,

[Cu₂(Dic)₄L₂] wherein each L is independently selected and is water, ethanol, dimethylsulfoxide or methanol,

and mixtures thereof.

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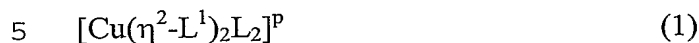
7. A pharmaceutical composition according to any one of claims 1 to 5, wherein the carboxylate having anti-inflammatory activity is indomethacin.

8. A pharmaceutical composition according to claim 7, wherein the metal
25 complex of a carboxylate having anti-inflammatory activity is a dinuclear metal complex containing indomethacin.

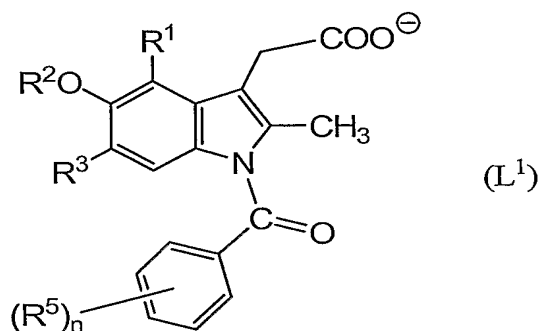
9. A pharmaceutical composition according to claim 8, wherein the metal
complex of a carboxylate having anti-inflammatory activity is [Cu₂(Indo)₄(OH₂)₂].

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10. A pharmaceutical composition according to any one of claims 1 to 5, wherein the metal complex of a carboxylate having anti-inflammatory activity is a mononuclear copper complex of the formula (1):



wherein “ η^2 -L¹” is a bidentate ligand of the formula L¹:

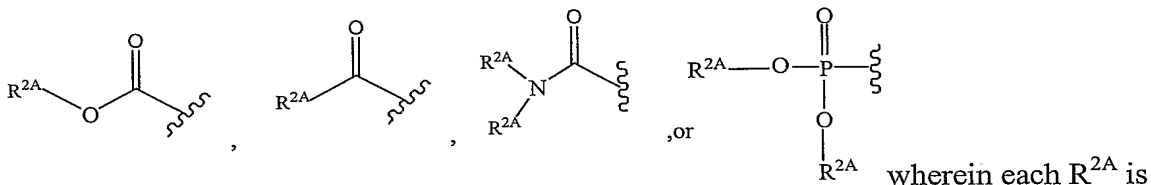


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wherein:

R^1 is H or halo:

R² is H; a C₁ to C₆ alkyl, an alkenyl or an alkynyl, where the C₁ to C₆ alkyl, alkenyl or alkynyl may be optionally substituted; or



independently selected from the group consisting of H, C₁ to C₆ alkyl, alkenyl, alkynyl, aryl, cycloalkyl and arylalkyl, where the C₁ to C₆ alkyl, alkenyl, alkynyl, aryl, cycloalkyl or arylalkyl may be optionally substituted;

R³ is H or halo;

20 each R⁵ is independently selected from the group consisting of halo, -CH₃, -CN, -OCH₃, -SCH₃ and -CH₂CH₃, where the -CH₃, -OCH₃, -SCH₃ or -CH₂CH₃ may be optionally substituted; and

n is 1, 2, 3, 4 or 5;

each L is independently selected and is a monodentate ligand,

25 and p is the charge of the complex.

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11. A pharmaceutical composition according to claim 10, wherein L¹ is Indo.

12. A pharmaceutical composition according to any one of claims 1 to 11, wherein
5 the composition has a colloidal structure selected from micelles in an aqueous carrier or an oil-in-water emulsion.

13. A pharmaceutical composition according to any one of claims 1 to 11, wherein
10 the composition forms a colloidal structure when administered to a human or animal.

14. A pharmaceutical composition comprising a metal complex of a carboxylate
having anti-inflammatory activity, one or more pharmaceutically acceptable surfactants
and water, wherein:

- 15 (1) the composition comprises micelles in an aqueous carrier;
(2) more than 80% of the total amount of the carboxylate having anti-
inflammatory activity in the composition is present as part of a metal
complex; and
(3) less than 10% of the carboxylate having anti-inflammatory activity
20 complexed with the metal dissociates from the metal over 12 months when
the composition is stored in the absence of light at room temperature;
but excluding compositions comprising a metal complex containing the ligand DMF.

15. A pharmaceutical composition according to claim 14, wherein the one or
25 more surfactants is selected from the group consisting of Sorbitan Fatty Acid Esters
surfactants and Caster Oil Polyoxyethylene surfactants.

16. A pharmaceutical composition comprising a metal complex of a carboxylate
having anti-inflammatory activity, one or more pharmaceutically acceptable oils, one or
30 more pharmaceutically acceptable surfactants and water, wherein:

- (1) the composition is an oil-in-water emulsion;
(2) more than 80% of the total amount of the carboxylate having anti-
inflammatory activity in the composition is present as part of a metal
35 complex; and

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- (3) less than 10% of the carboxylate having anti-inflammatory activity complexed with the metal dissociates from the metal over 12 months when the composition is stored in the absence of light at room temperature; but excluding compositions comprising a metal complex containing the ligand DMF.

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17. A pharmaceutical composition according to claim 16, wherein the one or more oils is a medium chain triglyceride.

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18. A pharmaceutical composition according to claim 16 or 17, wherein the one or more surfactants is selected from the group consisting of Sorbitan Fatty Acid Esters surfactants and Caster Oil Polyoxyethylene surfactants.

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19. A pharmaceutical composition comprising a metal complex of a carboxylate having anti-inflammatory activity in a pharmaceutically acceptable carrier, wherein:

(1) the composition is immiscible with water;

(2) more than 80% of the total amount of the carboxylate having anti-inflammatory activity in the composition is present as part of a metal complex; and

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(3) less than 10% of the carboxylate having anti-inflammatory activity complexed with the metal dissociates from the metal over 12 months when the composition is stored in the absence of light at room temperature.

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20. A pharmaceutical composition for oral administration comprising a metal complex of a carboxylate having anti-inflammatory activity, one or more pharmaceutically acceptable oils and one or more pharmaceutically acceptable surfactants, wherein:

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(1) the one or more oils and one or more surfactants are present in the composition in amounts such that following oral administration of the composition to a human or animal, the composition forms an oil-in-water emulsion on contact with aqueous fluids in the digestive system of the human or animal;

(2) more than 80% of the total amount of the carboxylate having anti-inflammatory activity in the composition is present as part of a metal complex; and

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(3) less than 10% of the carboxylate having anti-inflammatory activity complexed with the metal dissociates from the metal over 12 months when the composition is stored in the absence of light at room temperature;

but excluding compositions comprising a complex containing the ligand DMF.

21. A pharmaceutical composition according to claim 20, wherein the one or more oils is a medium chain triglyceride.

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22. A pharmaceutical composition according to claim 20 or 21, wherein the one or more surfactants is selected from the group consisting of Sorbitan Fatty Acid Esters surfactants and Caster Oil Polyoxyethylene surfactants.

10 23. A pharmaceutical composition comprising:

| <u>Ingredient:</u> | <u>Amount (% by weight of the composition):</u> |
|--|---|
| One or more metal complexes of a carboxylate having anti-inflammatory activity | 3 to 7 |
| One or more solvents | 20 to 40 |
| One or more surfactants | 5 to 20 |
| One or more thickeners | 0 to 15 |
| Medium chain triglyceride | 40 to 60 |

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24. A pharmaceutical composition according to claim 23 comprising:

| <u>Ingredient:</u> | <u>Amount (% by weight of the composition):</u> |
|--|---|
| One or more metal complexes of a carboxylate having anti-inflammatory activity | 3 to 7 |
| One or more solvents | 30 ±10% |
| One or more surfactants | 10 ±10% |
| One or more thickeners | 5 ±10% |
| Medium chain triglyceride | 50 ±10% |

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25. A pharmaceutical composition according to any one of claims 13 to 24, wherein the carboxylate having anti-inflammatory activity is a NSAID.

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26. A pharmaceutical composition according to any one of claims 13 to 24, wherein the carboxylate having anti-inflammatory activity is indomethacin.

27. A method for treating an inflammatory condition in a human or animal, the method comprising administering to the human or animal a therapeutically effective amount of a composition according to any one of claims 1 to 26.

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28. A method according to claim 27, wherein the inflammatory condition is selected from the group consisting of rheumatoid arthritis, osteoarthritis, acute musculoskeletal disorders, lower back pain, and inflammation, pain or edema following a surgical or non-surgical procedure.

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29. A method according to claim 27, wherein the inflammatory condition is psoriasis or psoriatic arthritis.